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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/712,626	11/14/2000	Soon-Jai Khang	UOC-128D	3705

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WOOD, HERRON & EVANS, LLP
2700 CAREW TOWER
441 VINE STREET
CINCINNATI, OH 45202

EXAMINER
VANOY, TIMOTHY C

ART UNIT	PAPER NUMBER
1754	7

DATE MAILED: 08/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09-712,626	KHANG et al.
Examiner	**Group Art Unit**
VANOY	1754

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to ~~communication(s) filed on~~ THE AMENDMENT AND PROPOSED DRAWING CORRECTIONS MAILED JUNE 12, 2003.

☒ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-60 is/are pending in the application.

Of the above claim(s) 42-60 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-41 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☒ Claim(s) 1-60 are subject to restriction or election requirement

Application Papers

☒ The proposed drawing corrections, ~~filed on~~ SUBMITTED WITH THE AMENDMENT MAILED JUNE 12, 2003, is ☒ approved ☐ disapproved. BUT FOR THE MERE DELETION OF "A TYPICAL 500 MW POWER PLANT" IN FIG. 1 WITHOUT LABELING FIG. 1 PRIOR ART

☒ The drawing(s) filed on NOV 14 2000 is/are objected to by the Examiner BECAUSE FORMAL CORRECTED DRAWINGS ARE NOT OF RECORD.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☐ All ☐ Some* ☐ None of the:

☐ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____.

☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____.

Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☒ Interview Summary, PTO-413

☐ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other _____

Office Action Summary

DETAILED ACTION

Election/Restrictions

The applicants' election without traverse of claims 1-41 in their amendment mailed on June 12, 2003 (paper no. 6) is acknowledged.

The requirement is still deemed proper and is therefore made FINAL.

The applicants further comment that they had cancelled claims 42-60 in their preliminary amendment mailed on Nov. 14, 2000 (paper no. 2), however there are no instructions in the amendment mailed on Nov. 14, 2000 (paper no. 2) requiring that claims 42-60 be cancelled. The amendment mailed on Nov. 14, 2000 only sets forth that claims 42-60 are withdrawn without prejudice.

This application contains claims 42-60 drawn to an invention nonelected without traverse in the amendment mailed on June 12, 2003 (paper no. 6). A complete reply to this final Office action must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Drawings

a) Figure 1 is again objected to because it is not clear if it should be designated by a legend such as --Prior Art-- because the title banner "A Typical 500 MW Power Plant" and the disclosure set forth on pg. 29 lns. 5 and 6 suggests that only that which is old is illustrated. See MPEP § 608.02(g).

The proposed drawing correction which merely deletes "A Typical 500 MW Power Plant" submitted with the amendment mailed on June 12, 2003 (paper no. 6) is

not *approved by the examiner because this figure must be prior art and prior art figures must be so labeled.*

b) Fig. 1 is objected to as failing to comply with 37 CFR 1.84(p)(4) because the reference characters "11, 12, 14, 15, 16" have been used to designate the same feature and reference characters "13, 22, 24, 28" have both been used to designate the same feature.

The proposed drawing correction which deletes "12, 14, 15, and 16" and also deletes "22, 24 and 28" in fig. 1 submitted with the amendment mailed on June 12, 2003 (paper no. 6) is ***approved*** *by the examiner and will overcome the above objection.*

c) Fig. 2 is objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "21, 39" have been used to designate the same feature.

The proposed drawing correction which deletes "21" in fig. 2 submitted with the amendment mailed on June 12, 2003 (paper no. 6) is ***approved*** *by the examiner and will overcome the above objection.*

d) Fig. 5 is objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "13, 28" have been used to designate the same feature.

The proposed drawing correction which deletes "28" in fig. 5 submitted with the amendment mailed on June 12, 2003 (paper no. 6) is ***approved*** *by the examiner and will overcome the above objection.*

e) Fig. 1 is objected to as failing to comply with 37 CFR 1.84(p)(5) because it includes the reference sign "58", which is not mentioned in the description of Fig. 1 set forth in the specification.

The proposed drawing correction which deletes "58" in fig. 1 submitted with the amendment mailed on June 12, 2003 (paper no. 6) is ***approved*** *by the examiner and will overcome the above the objection.*

f) Fig. 5 is objected to as failing to comply with 37 CFR 1.84(p)(5) because it includes the reference sign "23", which is not mentioned in the description of Fig. 5 set forth in the specification.

The proposed drawing correction which deletes "23" in fig. 5 submitted with the amendment mailed on June 12, 2003 (paper no. 6) is ***approved*** *by the examiner and will overcome the above objection.*

g) In Fig. 1, the writing inside features 38 and 40 is illegible.

The proposed correction that the text written within features 38 and 40 be moved to an appropriate location in the text set forth in the "Detailed Description of the Drawings" portion in the specification submitted in the amendment mailed on June 12, 2003 (paper no. 6) is ***approved*** *by the examiner and will overcome the above objection.*

A proposed drawing correction or corrected drawings are required in reply to the Office Action **to avoid abandonment** of the application. The objection to the drawings will **not be held in abeyance**.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 39-41 are rejected under 35 U.S.C. 102(a and b) as anticipated by the Applicants' admission of the prior art illustrated in Applicants' Fig. 1 and admitted on pg. 2 ln. 2 to pg. 3 ln. 3; pg. 14 lns. 20 and 21 and pg. 29 lns. 5 and 6 in the Applicants' specification.

(The claims have been rejected under both 35USC102(a) and 35USC102(b) because it is not clear if the admitted prior art in the Applicants' specification is older than one year from the filing the date of this application. Any information the Applicants can give on the date of the admitted prior art in their specification is appreciated: please see section 706.02(c), 4th full paragraph in the MPEP (8th ed.)).

From the description of the prior art process set forth on pg. 2 ln. 2 to pg. 3 ln. 3; pg. 14 lns. 20 and 21 and pg. 29 lns. 5 and 6 in the Applicants' specification and illustrated in Applicants' Fig. 1, the known process for the electrostatic purification of dust and pollutant-containing flue gas, comprises the steps:

injecting slaked lime into the flue gas at location 46;

passing the lime-containing flue gas through a dry ESP 20 equipped with a heat exchanger, evidently to cool the flue gas and collect what appears to be calcium sulfite; calcium nitrate and calcium chloride solids out of the flue gas (please also see feature 40 illustrated in Fig. 1);

injecting ammonia into the flue gas at location 44;

passing the ammonia-containing flue gas through a wet ESP 32 where water is sprayed into the flue gas to remove residual pollutants out of the flue gas to produce a purified flue gas and a pollutant-loaded scrub water;

passing the purified, flue gas through a heat exchanger 50 where it is heated;

discharging the heated, purified flue gas through the discharge stack 34;

passing the pollutant-loaded water 36 along with slaked lime 54 into what appears to be a collection/reaction sump 38 where (evidently) the pollutant-loaded water reacts with the slaked lime 54 under such conditions as to generate gaseous ammonia 44 (which is recycled back to the ammonia injection point 44) and (solid?) calcium sulfite and calcium sulfate compounds;

passing the water through a heat exchanger 56 where it is cooled;

passing the cooled water into a collection sump 40, where calcium nitrate and calcium chloride salts are removed from the cooled water, and

recycling the purified water 42 back to the wet ESP 32.

A portion of the heat was transferred from the hot flue gas entering the dry ESP to the heat exchanger 50 (where it heated the cleaned flue gas), and another portion of the heat was transferred to the untreated, pollutant-loaded water 36 through a closed, heat exchange circuit 48.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-38 are rejected under 35 U.S.C. 102(a and b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over the Applicants' admission of the prior art illustrated in Applicants' Fig. 1 and admitted on pg. 2 ln. 2 to pg. 3 ln. 3; pg. 14 lns. 20 and 21 and pg. 29 lns. 5 and 6 in the Applicants' specification in view of the Applicants' definition of "sensible cooling" on pg. 14 ln. 20 to pg. 15 ln. 4 in the Applicants' specification.

(The claims have been rejected under both 35USC102(a) and 35USC102(b) because it is not clear if the admitted prior art in the Applicants' specification is older than one year from the filing the date of this application. Any information the Applicants can give on the date of the admitted prior art in their specification is appreciated: please see section 706.02(c), 4th full paragraph in the MPEP (8th ed.)).

From the description of the prior art process set forth on pg. 2 ln. 2 to pg. 3 ln. 3; pg. 14 lns. 20 and 21 and pg. 29 lns. 5 and 6 in the Applicants' specification and illustrated in Applicants' Fig. 1, the known process for the electrostatic purification of dust and pollutant-containing flue gas, comprises the steps:

injecting slaked lime into the flue gas at location 46;

passing the lime-containing flue gas through a dry ESP 20 equipped with a heat exchanger, evidently to cool the flue gas and collect what appears to be calcium sulfite; calcium nitrate and calcium chloride solids out of the flue gas (please also see feature 40 illustrated in Fig. 1);

injecting ammonia into the flue gas at location 44;

passing the ammonia-containing flue gas through a wet ESP 32 where water is sprayed into the flue gas to remove residual pollutants out of the flue gas to produce a purified flue gas and a pollutant-loaded scrub water;

passing the purified, flue gas through a heat exchanger 50 where it is heated;

discharging the heated, purified flue gas through the discharge stack 34;

passing the pollutant-loaded water 36 along with slaked lime 54 into what appears to be a collection/reaction sump 38 where (evidently) the pollutant-loaded

water reacts with the slaked lime 54 under such conditions as to generate gaseous ammonia 44 (which is recycled back to the ammonia injection point 44) and (solid?) calcium sulfite and calcium sulfate compounds;

passing the water through a heat exchanger 56 where it is cooled;

passing the cooled water into a collection sump 40, where calcium nitrate and calcium chloride salts are removed from the cooled water, and

recycling the purified water 42 back to the wet ESP 32.

A portion of the heat was transferred from the hot flue gas entering the dry ESP to the heat exchanger 50 (where it heated the cleaned flue gas), and another portion of the heat was transferred to the untreated, pollutant-loaded water 36 through a closed, heat exchange circuit 48.

The difference between the Applicants' claims and the prior art process illustrated in Fig. 1 and discussed in (at least) pg. 2 ln. 2 to pg. 3 ln. 3 in the Applicants' specification is that Applicants' claim 1 sets forth that the flue gas is sensibly cooled, whereas Fig. 1 sets forth the use of a "heat exchanger" to cool the gas.

Pg. 14 ln. 20 to pg. 15 ln. 4 in the Applicants' specification defines "sensible cooling" as cooling without changing the humidity of the flue gas.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made *to further describe* the effect of "heat exchanger" which is part of feature 20 in the prior process illustrated in Applicants' Fig. 1 and discussed on (at least) pg. 2 ln. 2 to pg. 3 ln. 3 in the Applicants' specification on the flue gas *as* "sensibly cooling" the flue gas, in the manner set forth in at least the Applicants' claim 1,

because the Applicants' definition of "sensible cooling" set forth on pg. 14 ln. 20 to pg. 15 ln. 4 in the Applicants' specification *renders obvious* the inherent property of heat exchangers to "sensibly cool" the flue gas, since water is neither being added to or taken from the flue gas in the heat exchanger. Since this difference inherently occurs in the prior art process, then these claims are rejected under 35USC102 - as well as 35USC103.

Response to Arguments

The applicants' arguments submitted in their amendment mailed on June 12, 2003 (paper no. 6) have been fully considered but they are not persuasive.

a) *The applicants argue that pg. 14 lns. 20-21 and pg. 29 lns. 5-6 and fig. 1 are not prior art. The text on pg. 14 lns. 20-21 states "[a]s mentioned briefly above, the first section 11 includes a sensible-cooling heat exchanger 12". The introductory clause "[a]s mentioned briefly above" refers the reader to the immediately-preceding paragraph, which begins as follows "The flue-gas treating device 10 shown in Fig. 1, in accordance with the principles of the invention, includes a first a first section 11 having a sensible-cooling heat exchanger 12 and a first electrostatic precipitator 14. Pg. 29 in the applicants' specification makes it clear that the multiple field flue gas treatment system illustrated in applicants' figure 1 is in accordance with the principles of the invention.*

All of the figure features mentioned in the applicants' argument (i. e. 10, 11, 12, 14, etc.) are all *part* of the figure illustrated in applicants' figure 1, which bears the title

"A Typical 500 MW Power Plant" (which is tantamount to labeling this figure "prior art"). The title of figure 1 "A Typical 500 MW Power Plant" is clear evidence that this figure is prior art. That the applicants' prior art figure 1 is "in accordance with the principles of the (applicants') invention" does not, per se, impart patentability to the applicants' invention. The applicants have not shown how the limitations in their claims are unobviously distinct from the prior art figure 1.

b) *The applicants argue that examiners Ohorodnik,Tran and Knode studied the exact same specification when they examined the parent application and fully appreciated that the entire specification referred to the applicants' invention and at no time did the examiners contend that the anything in the applicants' disclosure was admitted prior art.*

There is nothing in the prosecution of the parent application that changes the fact that applicants' figure 1 submitted in this application (09-712,626) has been labeled "A Typical 500 MW Power Plant" and that such a label is tantamount to an admission that this figure is prior art. The applicants have not offered a 132 declaration swearing that figure 1 is not prior art to the invention of the applicants' claims. The applicants have not offered an additional figure corresponding to ("paralleling") applicants' figure 1 illustrating any possible differences between their claimed invention and the prior art figure illustrated in figure 1.

THIS ACTION IS MADE FINAL. The Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final Office action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final Office action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final Office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 703-308-2540. The examiner can normally be reached on 9 hr. days Mon-Thurs, and Fri. afternoons.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Timothy C. Vanoy
Patent Examiner
Art Unit 1754

Timothy Vanoy/tv
August 1, 2003

STANLEY S. SILVERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700